Why Reduce Waste? A Reason to Create Griz Give-and-Get

The Harms of Consumer Waste

Although Griz Give-and-Get has the three goals of reducing waste, reducing financial burdens, and building community, the primary motivation behind this project has been to reduce waste. Since the primary objective of Griz Give-and-Get is to reduce consumer waste, one must understand the harms of consumer waste to understand the importance of Griz Give-and-Get's mission. One can divide the harms of waste into two categories: upstream harms and downstream harms. Upstream harms refer to the harms that an item has *before* a consumer buys it. This includes all harms caused by the extraction of materials, production, and the transportation required to bring a consumer item to a store or home.[1] Therefore, the environmental and social costs of mining, logging, manufacturing, shipping, and the many other activities necessary to make and sell the consumer product that one wastes all count as upstream harms.

The effects of upstream harms seem clear: they contribute to climate change, produce toxins, and can directly harm the workers and non-human lifeforms who have found themselves in the chain of production. While conversations around the harms of waste sometimes ignore upstream harms, Missoula city climate and sustainability specialist Leigh Ratterman finds the effects of upstream harms to be so great that it is one of the most persuasive reasons to reduce waste.[2] It seems clear what the harms of upstream waste are, as well as the fact these harms are large in scale.

However, to quantify the exact scale of upstream harms requires an analysis of the total

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[1] CEC (Commission for Environmental Cooperation). (2017). Characterization and Management of Food Loss and Waste in North America. Montreal, Canada, 136

[2] Ratterman, Leigh. *Updates about Missoula's Zero Waste Strategy*. Interview by Sam Sullivan, 19 Mar. 2024

harms that Earth's mining, logging, manufacturing and all other modes of industry cause. It also requires one to estimate how many of the harms that industry causes will become waste and how much of it will be used. Due to the massive scale of these harms, no study has found the exact extent of upstream waste; however, some studies have attempted to provide general estimates of the scale of upstream waste specific to food waste.[3] In the context of food waste, one study estimates that about eighty seven percent of the greenhouse gasses that one can attribute to food waste comes from upstream effects.[4] While this cannot tell one much about the scale of the upstream harms Griz Give-and-Get attempts to mitigate, this figure seems to demonstrate that one must know upstream wastes' harms to gain a more complete understanding of the harms waste possesses.

Downstream harms refer to the harms of waste *after* it has been discarded. This includes the effects of transporting waste to a waste management facility and the effects of waste management itself.[5] Downstream waste seems easier to quantify than upstream waste. Nevertheless, when most studies look at the downstream effects of waste, they seem to look only at the harms that the waste management process causes.[6][7][8]

The harms of waste management differ depending upon what method of waste management is used. There are four methods of waste management the EPA recognizes for non-food consumer waste: landfilling, incineration, recycling, and composting.[9] Each method has its own unique harms. Since Griz Give-and-Get primary goal is to reduce landfill waste, the

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[3] Jaglo, Kirsten, et al. 2019. From Farm to Kitchen: "The Environmental Impact of U.S. Food Waste." Environmental Protection Agency (EPA), 22
[4] CEC, 142
[5] CEC, 136
[6] Environmental Protection Agency (EPA). 2020. "National Overview: Facts and Figures on Materials, Wastes and Recycling."
[7] Montana Department of Environmental Quality. 2016. "2016 Recycling and Waste Diversion Strategy."
[8] CEC, 142
[9] Environmental Protection Agency (EPA). *National Overview: Facts and Figures on Materials, Wastes and Recycling*

remainder of this essay will be on the impacts and philosophical ramifications of landfills.

The Harms of Landfills

Although landfills have harms, they are an improvement from open pit dumping and burning of waste. These two methods had been common practice of waste management in many parts of the world during the 1950s.[10] Nevertheless, despite the fact that landfills are an improvement from forms of waste management popular in the 1950s, they still have harms.

There are three primary harms that landfills cause: they emit methane, leach lecheate, and destroy habitat.[11][12] While the methane that landfills emit pose a serious threat to climate change, the main reason why they produce methane is because they contain high levels of decomposing organic material from food waste.[13] Although it is possible that Griz Give-and-Get will divert some food waste, it seems probable that it will divert little of it. Therefore, since Griz Give-and-Get probably will not help to reduce the primary source of landfill methane emissions, the leaching of leachate and loss of habitat are the two greatest downstream harms that Griz Give-and-Get has the potential to reduce.

As consumer goods decompose, the toxins within these materials leach into liquid form. These liquids are called leachates. If leachates leave a landfill, they can pollute groundwater and other water systems. The EPA requires that landfills have a liner to keep leachates from escaping. The problem is that these liners also break down over time.[14] Consequently, there are frequent holes in landfill liners that allow leachates to leach into groundwater.[15] The more items in a landfill, the more items that can form leachate. By reducing the amount of waste in landfills, one

[10] Vaverková, Magdalena Daria. 2019. “Landfill Impacts on the Environment— Review.”, 4
[11] Vaverková, 4-8
[12] Vasarhelyi, Kayla. 2021. “The Hidden Damage of Landfills.” Environmental Center. University of Colorado Boulder. April 15, 2021.
[13] Vaverková, 5
[14] Lundquist 10
[15] Vasarhelyi

also reduces the amount of leachate. Therefore, one consequence of Griz Give-and-Get's mission to reduce waste is to reduce the amount of leachate that can pollute Missoula's water systems.

The second downstream harm of landfills that Griz Give-and-Get aims to mitigate is habitat loss. The construction of a landfill requires the destruction of all plant life living within the spot of the landfill. This also requires the animals who have relied on this plant life to relocate. Writer for the University of Colorado Kayla Vasarhelyi estimates that landfills in the United States have destroyed 1.8 million acres of habitat.[16] Needless to say, landfills also take up space that humans could be using for other purposes. In Missoula, the landfill sits next to hiking trails.[17] If Missoula had never had a landfill, then there would be even more space to have hiking trails for human recreation.

However, the effects of the space landfills take up are not confined to the borders of landfills. Landfills produce pollution and smelly air for properties around them. Landfills even reduce the economic value of land adjacent to them by 12.9 percent.[18] Given the harms that landfills pose for air, water, habitat loss, and even economic prosperity, there are many reasons to support a project that aims to reduce the size of landfills. This is one of the main reasons why I have put my energy into the creation of Griz Give-and-Get.

Waste Produced in The United States and Montana

The Environmental Protection Agency (EPA) reported that the United States had generated 292.4 million tons (644.6 billion pounds) of Municipal Solid Waste (MSW) in 2018. Of this waste produced, about half of this waste or 146.1 million tons (292.2 billion pounds) of waste had been sent to landfills. This means that the average US resident would have sent 2.45 pounds of waste to the landfill per day. The total amount of waste Americans had sent to landfills

[16] Vasarhelyi
[17] Ratterman
[18] Vasarhelyi

in 2018 increased by about 6 million tons compared to 2017.[19]

This was a sharper rise in the amount of waste sent to landfills than the previous two decades. As recycling rates in the United States began to rise in the 1990s, the amount of waste sent to landfills decreased for the first time since data began to be collected on the issue in 1960. However, mostly due to an increasing population, the amount of waste sent to landfills had begun to increase again in 2015. While trends have probably continued to change since 2018, the EPA has not published a new report on waste generation in the United States since this date.[20]

While the amount of waste generated on a national level may appear high, the problem in the state of Montana looks much more dire. The Montana Department of Environmental Quality (DEQ) estimated that Montanans generated 1.8 million tons (3.6 billion pounds) of MSW in 2016. From this, 1.4 million tons (2.8 billion pounds) were sent to landfills.[21] From this statistic, the per capita rate of items landfilled in Montana was more than double the national average. Compared to the average American who sent 2.5 pounds of waste to the landfill in 2018, the average Montanan sent 6.9 pounds of waste to the landfill per day.

Although this may make it appear that Montanans are producing much higher amounts of waste than the national average, one reason for the disparity is that the Montana DEQ has a more inclusive definition of MSW than the EPA. The EPA defines MSW as all "items consumers throw away after they are used."[22] This excludes construction debris, wastewater sludge, and most other industrial waste.[23] However, the DEQ often includes industrial waste as MSW. Therefore, one reason for Montana's high MSW rate is that the DEQ counts more items as MSW than the EPA.[24] Nevertheless, only about 22 percent of MSW in Montana had been recycled or

[19] Environmental Protection Agency (EPA)
[20] Environmental Protection Agency (EPA)
[21] Montana Department of Environmental Quality. *2016 Recycling and Waste Diversion Strategy*
[22] Environmental Protection Agency (EPA), Paragraph 3
[23] Environmental Protection Agency (EPA).
[24] Montana Department of Environmental Quality (DEQ) *2016 Recycling and Waste Diversion Strategy*.

composted in 2016.[25] By comparison, on a national level, 35.1 percent of MSW had been recycled or composted in 2017.[26] Therefore, assuming that trends have remained consistent, Montana is below the national average for the percentage of MSW recycled or composted.

Missoula's Zero Waste Plan

Acknowledging Montana's lower-than-average recycling and composting rate, the city of Missoula has strived to reduce the amount of landfilled waste. In February 2016, former Mayor John Engen signed Resolution Number 8044.[27] The resolution has more commonly been referred to as Missoula's zero waste plan. While this name may suggest that the plan aims to reduce all waste, the resolution's real goal is to divert 90 percent of all Missoula's waste from the landfill by 2050. Griz Give-and-Get's goal to reduce waste on the University of Montana's campus aligns with the city's own goal to curb waste. Efforts that help Missoulians divert waste from the landfill could be critical to helping the city of Missoula achieve its ambitious 2050 goal.

The city of Missoula plans to reach this goal through a variety of strategies that fall under four categories: Increase the *access* to waste reduction methods, develop *infrastructure* around a zero-waste economy, *educate* people about waste reduction, and change *policy* to encourage waste reduction.[28] A central component behind Missoula's zero-waste plan is to collect data and be transparent about whether the city has reduced waste. To help the city stay on track, the plan has three benchmarks for when a certain percentage of waste should be reduced. The first benchmark states that by the year 2025 (next year), the city should be sending at least 30 percent less waste to the landfill than in 2016.[29]

Although this benchmark is quickly approaching, it seems unclear whether the city will

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[25] Montana Department of Environmental Quality (DEQ) *2018 Integrated Waste Management Plan*
[26] Environmental Protection Agency (EPA).
[27]City of Missoula. 2016. *Resolution Number 8044*.
[28] City of Missoula. 2018. "ZerobyFifty: Missoula's Pathway to Zero Waste."
[29] City of Missoula. 2016. *Resolution Number 8044*

reach their goal. As of March 2024, Ratterman says that neither the city nor Republic Services (the company who owns the landfill) has conducted a formal study to estimate whether Missoula's waste has decreased. Nevertheless, Ratterman remains optimistic that Missoula will hit this benchmark. She hopes that efforts from the city to eliminate single-use cups and other utensils at events, such as concerts and city gatherings, will make a contribution that helps the city reach their first benchmark. Additionally, she believes that cities around the country have started to see a slight reduction in the amount of waste they generate. She is optimistic Missoula will be part of this trend. Nonetheless, she acknowledges that for the city to reach future benchmarks, the city will need to take much greater action.[30]

Regardless of whether Missoula manages to reach its goal, the city recognizes that they must reduce their waste if they want to avoid constructing a second landfill. One motivation behind the zero waste plan is a recognition that Missoula's landfill is running out of space. The resolution estimates that by 2033, the current landfill will need to expand. The resolution further estimates that if the city fails to take action to reduce waste, then by 2095 the current landfill will reach capacity.[31]

Despite the estimate that the landfill will need to expand by 2033, Republic Services may begin the expansion process much earlier than this. According to Ratterman, there is some speculation that Republic Services may be planning to expand as soon as next year. However, she could not verify this.[32] Missoula Community Planning Manager Laval Means also lacks information about whether Republic has plans to expand. She nevertheless recognizes that her office needs to know this information in the near future to plan around Republic's plans. Despite this, Means claims that Republic has become more difficult to contact as they have become more

[30] Ratterman
[31] City of Missoula. *Resolution Number 8044*. 8 Feb. 2016
[32] Ratterman

corporate.[33] It seems that I have experienced what Means is talking about first hand. Despite attempts to contact Republic to learn whether they have plans for expansion, they have never responded.

Nevertheless, even though Republic owns more than enough land to expand, their decision to expand could have real impacts on Missoula's environment. Much of their current land is open space for habitat. Furthermore, in recent years, hiking trails have been developed on some of their land.[34] Therefore, Republic's decision to expand has an impact on both the non-human life who call the land home and the humans who recreate on the land. Even if they decide to expand in area that leaves the hiking trails unaffected (as Ratterman believes they will)[35], this still destroys habitat and takes away land that could be used for other purposes. Furthermore, even if they expand next year and the current hiking trails are unaffected, if Missoulians fail to reduce their waste, then eventually the current hiking trails will have to be incorporated into the landfill.

If Missoula's landfill exceeds capacity, there will be less land for habitat, human recreation, and greater leachate production. To ensure this never happens, Missoulians must work towards the goals set by city resolution 8044. However, as Ratterman states, to go beyond a 30 percent reduction in landfilled waste, substantial actions must be taken to increase the alternatives available to Missoulians to divert their waste away from the landfill. Griz Give-and-Get aims to be one program that increases the ability of one segment of Missoula's community (the University of Montana's community) to give their waste to others instead of giving it to the landfill. My hope is that Griz Give-and-Get will be one, small component to the city's much more dramatic plan to cut all waste by 90 percent.

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[33] Means
[34] Ratterman
[35] Ratterman

Past and Current Efforts to Reduce Consumer Waste on Campus

While Griz Give-and-Get aims to help the city of Missoula meet its waste reduction goals, it targets only one segment of Missoula's community. However, although Griz Give-and-Get provides the University with a new way for students to give away unwanted items, similar programs exist both within the University. The University of Montana's most similar program to Griz Give-and-Get is Campus Thrift.[36] Griz Give-and-Get and Campus Thrift both have the same goal: to encourage UM students to give away their unwanted items for others to use.

Despite this, there are four key differences between how Griz Give-and-Get and Campus Thrift function. First, students can use Griz Give-and-Get throughout the year. Meanwhile, Campus Thrift only happens once per year. Second, all items on Griz Give-and-Get are free. Meanwhile, Campus Thrift makes people purchase items to help fund the University's sustainability program. Third, Griz Give-and-Get connects students with one another to give and receive goods. Whereas with Campus Thrift, there is no interaction between students. Last, Griz Give-and-Get is an online platform. Unlike Campus Thrift, there is no physical store or storage where students can pick up or buy items. On Griz Give-and-Get, all transactions happen online. While Campus Thrift is a great program for diverting student waste from the landfill, its major weakness is that students can only use it once per year. UM Sustainability Director Eva Rocke and UM Associate Director of Residential Experience Jace Whitaker both realize that this is a weakness. Despite this weakness, they note that past programs have existed that allow students to donate and collect unwanted, used items throughout the year.

According to Rocke and Whitacker, there used to be a "free table" at Lewis and Clark village for students to give away items at any point in the year. However, housing suspended the

[36] https://www.umt.edu/sustainability/campus-culture/campus-thrift.php

free table for two reasons. First, students put more items into the space than they would take. Consequently, the amount of space that was needed for the free table continued to expand. Lewis and Clark village could not continue to provide space for the free table's continued expansion. Second, some people would put trash (unusable items) into the area designated for the free table. Due to these issues, housing found that they lacked the space and staff to manage the free table.

The failure of the free table highlights two qualities that a successful waste diversion program at the University of Montana needs: a diversion program that requires neither staff nor space to manage. Both Rocke and Whitaker confirm this. According to them, the University lacks space to store items and lacks staff to maintain an area for a new waste diversion program.[37][38] Therefore, for Griz Give-and-Get to succeed, it is necessary that the program neither requires physical space nor extensive management by UM employees.

In a society where the internet dominates many social and workplace environments, the internet seems to be the best tool to create a waste diversion program that neither requires a physical space to store donated items nor makes UM employees manage the space. It is for this reason why I want to make Griz Give-and-Get an online, University waste diversion program. However, since websites already exist online where students can divert waste, then it raises the question why there should be a University specific waste diversion program.

[37] Rocke, Eva, and Tayli Hillyard. 2023. Strategies to Improve Sustainability Interview by Climate Response Club.
[38] Whitacker, Jace. *Strategies to Reduce Waste in Dorms*. Interview by UM Climate Response Club.